

METHOD OF PLATING FOR FILLING VIA HOLES

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ABSTRACT OF THE DISCLOSURE

10 A method of plating for filling via holes, in which  
each via hole formed in an insulation layer covering a  
substrate so as to expose, at its bottom, part of a  
conductor layer located on the substrate, is plated with  
copper, to be filled with the plated metal, the method  
comprising the steps of forming a copper film on the top  
surface of the insulation layer covering the substrate,  
15 and the side walls and bottoms of the respective via  
holes, immersing the substrate having the copper film  
formed in an aqueous solution containing a plating  
promoter to thereby deposit the plating promoter on the  
surface of the copper film, removing the plating promoter  
20 from the surface of the copper film located on the  
insulation layer and leaving the plating promoter on the  
side walls and bottoms of the respective via holes, and  
subsequently electroplating the substrate having the  
copper film formed with copper to thereby fill the via  
25 holes with the plated copper and simultaneously form a  
continuous copper film which eventually covers the via  
holes filled with the plated copper as well as the copper  
film previously formed on the insulation layer. The  
method is suitable for satisfactorily filling via holes,  
30 having a small diameter and a large aspect ratio, with  
plated copper.